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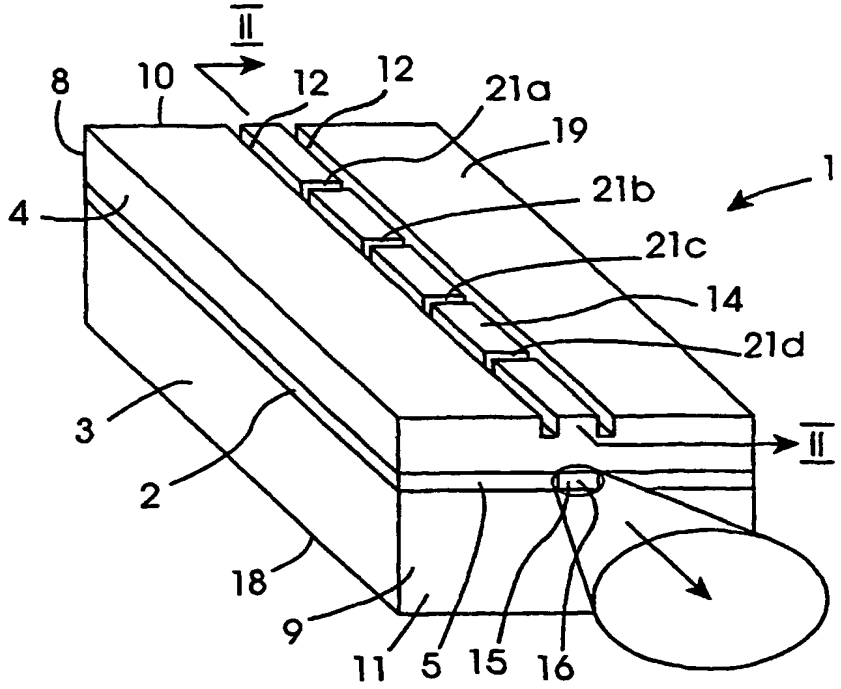
(54) Title: AN OPTICAL WAVEGUIDE AND A METHOD FOR PROVIDING AN OPTICAL WAVEGUIDE



(57) Abstract: A laser diode (1) having an optical path (15) defined in an active layer (2) which is sandwiched between a substrate layer (3) and a top layer (4) and defined by a ridge (14) formed in the top layer (4) outputs laser light of a single predetermined wavelength. Refractive index altering grooves (21) extending transversely in the top layer (4) are provided at spaced apart locations for altering the refractive index of the active layer (2) along the optical path at partial reflecting locations (20) for causing partial longitudinal reflections of the laser light generated in the optical path (15) so that standing waves or harmonics thereof of the single predetermined wavelength are set up between the respective partial reflecting locations (20) and a first mirror facet (8) in the optical path (15). In order that the standing waves set up between the partial reflecting locations (20) and the first mirror facet (8) are harmonics of the predetermined single wavelength, the refractive index altering grooves (21) are located along the ridge (14) for forming the reflecting locations (20) at distances from the first mirror facet (8) which correspond to the effective length of the optical path (15) resulting from the affect of the inclusion of the reflecting locations (20) rather than at locations corresponding to the actual length of the light path (15).

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